

PIERRE DUVINAGE



CATALOGUE
OF
SPIRAL STAIRS
IRON WORK
FOR BUILDINGS

PIERRE DUVINAGE
253 BROADWAY
NEW YORK
ESTABLISHED 1891

PIERRE DUVINAGE

Makes

SPIRAL STAIRS

Post Caps, Wall Plates,

Pier Plates and Brackets,

Roof Truss Castings and Rods,

Trussed Girder Rods and Struts,

Special Castings.

Cast Iron Columns, Bases and Plates,

Wheel Guards, and Jamb Guards,

Saddles, Sills, Shutter Eyes,

Cast Iron Clean-Out Doors,

Trap Pit Covers.

Steel Beams, Channels, Angles, T's,

Steel Columns, Girders, Trusses,

Wrought Iron Fire Escapes, Balconies,

Railings, Fences, Pipe Railing.

Window Guards, Area Gratings,

Wire Guards for Windows and Doors,

Sheet Metal Shutters, Doors,

Ornamental Iron Work.

Cast Iron and Steel Stairs,

Special Fittings for Sewage Disposal Works,

Water Works, Power Plants,

Revolving Domes for Astronomical Observatories,

And all kinds of Iron and Steel Work

Required for Buildings.

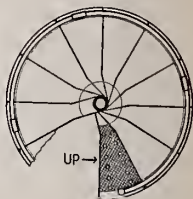
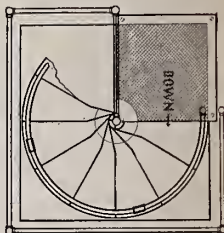
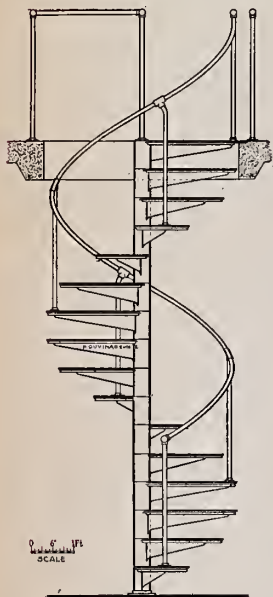
Prices on Application.

PIERRE DUVINAGE, 253 Broadway, New York

Figura Fischer

DUVINAGE SPIRAL STAIRS

Patented Feb. 13, 1917.



DUVINAGE SPIRAL STAIRS have been erected and approved for their simple, durable construction, as well as their economy in floor space; in offices, stores, mezzanines, theaters, boiler rooms, sewage disposal pumping wells, power plants, gas houses, water towers, moving picture theaters, and may be used in any place where floor space is limited and easy access from floor to floor is required. A 48" diameter stair occupies less than 12.5 square feet while a straight stair of similar proportions would occupy 44 square feet.

PIERRE DUVINAGE,

253 Broadway, New York

The regular stock treads of DUVINAGE SPIRAL STAIRS are correctly designed on the cantilever principle and so made that they can be used either right or left hand (cut shows right hand) and twelve or sixteen treads to the circle.

By calculating the number of risers required allowing 8" to 8¾" for each riser, the relative positions of starting and landing points are determined so as to decide whether a right or left hand stair would be best suited.

STANDARD SIZES

Diam.	Treads to the circle	Price per foot in height
72"	12 16	
66"	12 16	
60"	12 16	
54"	12 16	
48"	12 16	
*42"	12	

* This size is manufactured but not recommended as it is too narrow to easily pass up and down.

The 60" diameter being the best to use where space is not essential.

The DUVINAGE PATENTED SPIRAL STAIRS are made of the best grade of iron, diamond surface treads, no risers, single 1" pipe handrail and uprights on stairs and around well.

The center pipe over which the treads are slipped is 3" or 4" according to diameter and height of stairs. Each stair is assembled complete at the shop, given one shop coat of the best metallic paint, each piece marked and then knocked down for shipment; this arrangement makes the erection at the site very simple. Two men can erect a 10' to 12' high DUVINAGE SPIRAL STAIR in less than one half day.

A wrench and a screw driver are the only tools required.

Prices on application. Give diameter, height from floor to floor and if possible starting point and position of landing desired so that drawing may be submitted with estimate.

PIERRE DUVINAGE, 253 Broadway, New York

Plain and Ornamental Stairs, straight or spiral, will be designed and manufactured to suit requirements. Correspondence solicited.

INSTRUCTIONS FOR ERECTION

Erect the center pipe fastening the bottom flange to the floor. Tread marked No. 1 will then be slipped over the center pipe, place in correct position as shown on drawing which is furnished with each stair shipped out, and secure in position with set screw in hub, proceed in the same manner with treads marked No. 2, No. 3, No. 4, etc., until all the treads are in place. The platform is then slipped over the center pipe and the edge of the platform fastened to the floor which secures the stair.

Pipe Handrail—Take the upright No. 1 and fasten the flange to the bottom tread with the two bolts as shown on drawing, then fasten the curved pipe handrail to this upright and slip the other uprights over the handrail fastening the uprights to the proper tread which is usually every third tread. The upper upright is slipped over the end of the pipe and fastened to the platform. Next erect the 1" pipe at the hub of the platform and the rest of the railing being screwed together as shown.

After the stair is all erected would advise going over all the set screws on the hub of treads to make sure that each tread is securely fastened in its proper position.

COPY FOR ARCHITECTS TO INSERT IN SPECIFICATIONS

DUVINAGE PATENTED SPIRAL STAIRS—

Furnish and erect where shown on plans Duvinage Spiral Stairs as manufactured by Pierre Duvinage, 253 Broadway, New York City, — diameter, — height, cast iron treads, center pipe 3" diameter for 42", 48", and 54", 4" diameter for 60", 66", and 72". 1" Pipe handrail on stairs and around well opening.

PIERRE DUVINAGE, 253 Broadway, New York



D U V I N A G E
SPIRAL STAIR,
 54" diam., 12' 3"
 high, erected in
 office of Carson,
 Pirie Scott Co.,
 410 4th Avenue,
 New York City.
 Upper cut shows
 arrangement of
 winding railing on
 16th floor; lower
 cut shows stair as
 seen on the 15th
 floor.



Note the neat
 substantial c o n -
 struction, also
 small floor space
 required.

PIERRE DUVINAGE, 253 Broadway, New York

DUVINAGE SPIRAL STAIRS have been installed as follows:

Architect, Contractor or Owner	Location
Aetna Iron Works.....	Fifth Ave. Drug Store, Brooklyn, N. Y.
R. B. Barnes..	Dr. Raymond's Residence, Washington Depot, Conn.
A. T. Brook.....	Southern Cotton Oil Bldg., Bayonne, N. J.
Carson Pirie Scott Co.....	Office 410 4th Ave., New York City
City of New York.....	Sanitarium, Otisville, N. Y.
H. S. Congers.....	Warehouse, Bermuda
Consolidated Gas Co..	Boiler Room of Gas House, Highbridge, N.Y.
Dixon Building Co.....	Grant's Store, Brooklyn, N. Y.
Gust. Ericsson.....	Sterling Piano Co.'s Bldg., Brooklyn, N. Y.
Wm. Flanagan.....	Store 367 Flatbush Ave., Brooklyn, N. Y.
Wm. Flanagan.....	Office 450 Pearl St., New York City
Foundation Co.....	Sewage Disposal Plant, Albany, N. Y.
Foundation Co.,.....	Vacuum Oil Co.'s Bldg., Paulsboro, N. J.
Friedman Iron Works..	116th St. & Lex'ton Ave., New York City
Howard Greenley..	Sec'y's Office of Archt. League, New York City
W. E. Green & Co.....	Stable, Glen Cove, N. Y.
John C. Greenleaf.....	Farm Bldgs., Water Tower, Lee, Mass.
Grossman Bros. & Rosenbaum..	St. Anthony's Gym., B'klyn, N. Y.
Glenham Construction Co.....	Pump House, Glenham, N. Y.
J. H. Grozier Co....	Whiting Mfg. Co.'s Factory, Hartford, Conn.
D. S. Hess & Co.....	Office Bldg. 25 Broad St., New York City
D. S. Hess & Co.....	Office Bldg. 3 E. 40th St., New York City
D. Horsley.....	Moving Picture Studio, Bayonne, N. J.
F. D. Hyde.....	Signal Sta. D. L. & W. R.R., Buffalo, N. Y.
Jersey Construction Co.....	253 6th Ave. Store, New York City
Jas. H. S. Jones.....	Wolff Shirt Store, Bridgeport, Conn.
Katchen Iron Works.....	125th Street Theatre, New York City
W. I. Lawson.....	Garage, Glen Cove, N. Y.
Lehigh Valley Railroad Co....	Pier 44 East River, New York City
Meigs & Co.....	Store, Bridgeport, Conn.
J. Monk & Sons.....	Pier 36 North River, New York City
McKeever Bros.....	3 Stairs Fertilizer Plant, Tuckerton, N. J.
Pierson & Goodrich.....	Residence 9 E. 67th St., New York City
Portchester Baking Co..	Bakery, 3 Stories High, Portchester, N.Y.
Ruggles-Robinson Co..	U.S. Army Storage Bldg., Mill Rock, N. Y.
Sterling Products Co.....	Factory, Easton, Pa.
Robert Schnaier.....	Greek Church, 72nd St., New York City
H. Wales Lines Co.....	Crane Factory, Bridgeport Conn.
H. Wales Lines Co.....	Yale & Towne's Factory, Stamford, Conn.

PIERRE DUVINAGE, 253 Broadway, New York



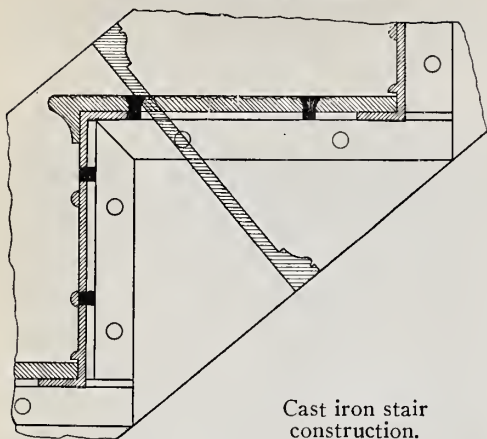
SPIRAL STAIRS in Power House

Vacuum Oil Co., Paulsboro, N. J.

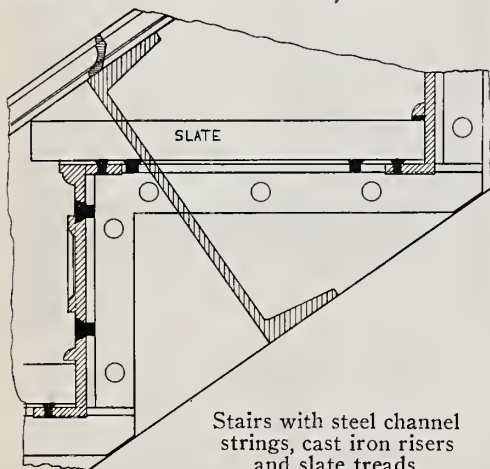
Foundation Co. of N. Y., General Contractors

PIERRE DUVINAGE, 253 Broadway, New York

STAIR DETAILS.



Cast iron stair construction.



Stairs with steel channel strings, cast iron risers and slate treads.

HIGH CLASS ORNAMENTAL RAILINGS



Railing for residence at Lake George.
Mr. Frank C. Farley, Architect,
New York City.

PIERRE DUVINAGE,
253 Broadway, New York

ANCHORING OF BUILDINGS.

THE prominent advantages of **DUVINAGE'S** system of **POST CAPS** and **WALL PLATES** for **SELF RELEASING BEAMS**, tying the outer walls of Brick Buildings and Framed Structures are: that in case of burning through the floor, the **BEAMS RELEASE THEMSELVES**, from their fastenings at either end, and fall in leaving the **WALLS STANDING**, and thereby confining the heat within, and tending to prevent the fire from spreading to adjoining buildings.

This feature recommends itself to every Owner of Property, and especially to Architects, Builders, Engineers, and Fire Insurance Companies.

INSURANCE COMPANIES SHOW THEIR APPROVAL, BY ALLOWING REDUCED RATES ON BUILDINGS IN WHICH THE DUVINAGE SYSTEM IS EMPLOYED.

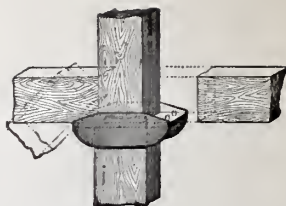
It **COSTS NOTABLY LESS** than any other style of construction. **PIERRE DUVINAGE** uses a **WALL PLATE** of cast iron of **PROPER THICKNESS**, and for the sides and top of the beams, uses the **SAME MATERIAL** as that of the wall.

Instead of making a groove across the timber, by two saw-cuts, and then gouging out the intervening wood to admit a rib on the plate, as is the practice of others, **PIERRE DUVINAGE** uses in his approved system, one or more **PROJECTING HUBS**, which engage in holes of corresponding size bored into the beams, thus preventing the shearing off of the anchoring part of the beam end.

THEREFORE, in fitting beams to the **DUVINAGE** Wall Plates, Post Caps, Pier Caps, Brackets, Sill Plates and Roof Truss Castings, **ONE TOOL ONLY** need be used or carried about, i. e., an **AUGER-BIT OF PROPER SIZE AND BORE**, which, with about a half a dozen turns will give the requisite depth of the hole needed. **A MAN CAN BORE A DOZEN HOLES IN THE SAME TIME THAT HE CAN MAKE A GROOVE.**

PIERRE DUVINAGE,

253 Broadway, New York



PRICE LIST OF DUVINAGE POST CAPS.

Size of Post	Roof	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "
6 inch squares,	\$1.20	\$1.70			
8 " "	2.45	5.00			
9 " "	2.75	5.70		\$8.20	
10 " "	3.20	6.10		8.35	\$9.20
11 " "	3.40		\$6.70	9.00	10.00
12 " "	3.60		8.35	9.25	10.85
13 " "			9.20	10.00	11.70
14 " "			10.00	11.70	13.35
15 " "			12.10	13.75	15.45
16 " "			13.35	15.45	17.10
17 " "			14.60	18.35	19.60
18 " "			15.20	20.00	20.70

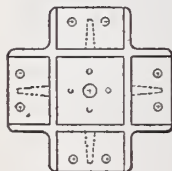
PIERRE DUVINAGE makes Bifurcated, Triple, Quadruple Caps, Etc., calculated for loads from 75 lbs. to 500 lbs. per square foot and length of span.

PRICES ON APPLICATION.

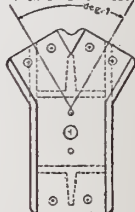
DUVINAGE POST CAPS.

FOR SELF-RELEASING BEAMS.

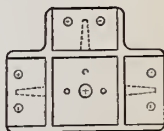
QUADRUPLE.



Y OR BIFURCATED.



TRIPLE.



PIERRE DUVINAGE,

253 Broadway, New York

THIS METHOD AS EVERY ONE CAN PLAINLY SEE,
NOT ONLY MAKES AN IMMENSE GAIN IN
STRENGTH, BUT ALSO A LARGE SAVING IN CAR-
PENTER'S LABOR.

A **DUVINAGE** Wall plate is an Anchor and Bearing
Block combined, and requires no Blue Stone or Granite
in the wall.

PIERRE DUVINAGE is prepared to supply castings
for any size of Post, Pier, Girder, Bracket, Sill Plate or Roof
Truss, either from regular patterns on hand or from designs
furnished by the Architect.



PRICE LIST OF DUVINAGE SINGLE ANCHOR WALL PLATES.

						9 in. deep	13 in. deep
Beams	4 in.	wide,	cast	iron	.....	.45	
"	5	"	"	"	.....	.60	
"	6	"	"	"	.....	.95	
"	8	"	"	"	.....	1.10	and 1.25
"	9	"	"	"	.....	1.25	" 1.50
"	10	"	"	"	.....	1.45	" 1.95
"	12	"	"	"	.....	1.95	" 2.25
"	14	"	"	"	.....	2.20	" 2.75
"	16	"	"	"	.....	2.50	" 3.35
"	18	"	"	"	.....	2.85	" 3.60

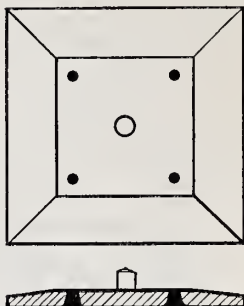
PIERRE DUVINAGE also makes Double Anchor
Plates for party or fire-walls.

PIERRE DUVINAGE,

253 Broadway, New York

DUVINAGE

CAST IRON BASE PLATES.



PRICE LIST.

Size of Plate				Post	Weight	Price
12 in.	x	12 in.	x 1 in.	6 in. sq.	40	\$2.00
16 "	x	16 "	x 1¼ "	8 " "	85	4.25
18 "	x	18 "	x 1½ "	9 " "	125	6.25
20 "	x	20 "	x 1½ "	10 " "	160	8.00
24 "	x	24 "	x 1½ "	12 " "	225	11.25
30 "	x	30 "	x 1¾ "	14 " "	410	20.50
36 "	x	36 "	x 2 "	16 " "	675	33.75

I AM FURNISHING

Special Castings,

Lally or Concrete Filled Columns,

Rolling Steel Shutters,

Stable Fixtures,

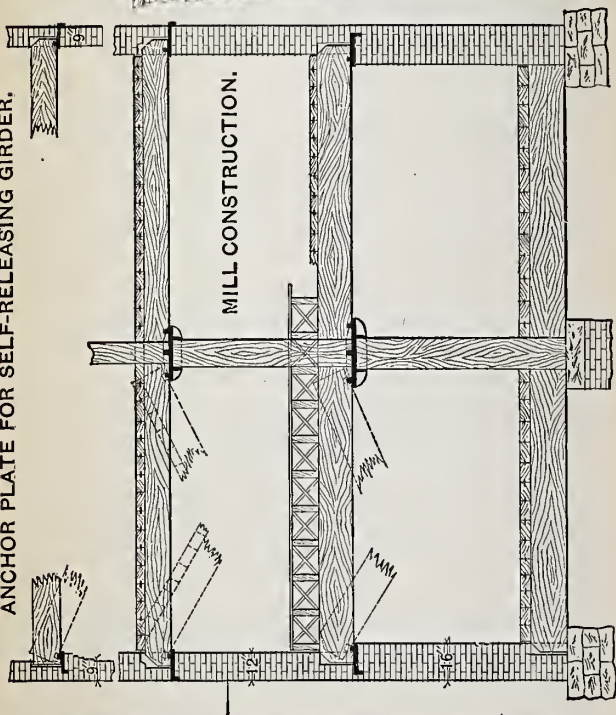
Reinforcing Concrete Bars,

Special Wrought Iron Hinges.

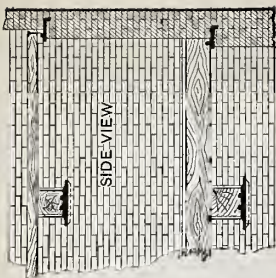
PIERRE DUVINAGE,

253 Broadway, New York

ANCHOR PLATE FOR SELF-RELEASING GIRDER.

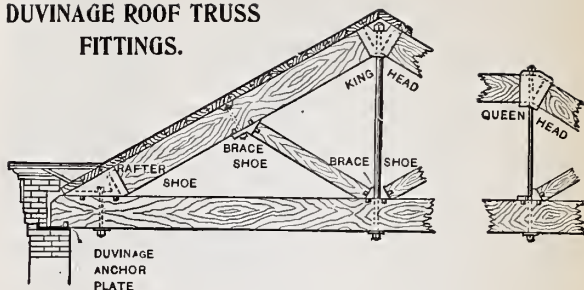


DUVINAGE'S SYSTEM.



PIERRE DUVINAGE, 253 Broadway, New York

DUVINAGE ROOF TRUSS FITTINGS.



Roof Truss Castings.

RODS, BOLTS AND WASHERS FOR ANY PITCH
REQUIRED.

Especially Adapted for Frame Structures, such as Country
Houses, Hotels, Churches, Warehouses, R. R. Depots,
Car-Houses, Garages, Stables, Etc.

THEY ARE NEATLY AND STRONGLY FRAMED.
THE ENDS OF THE TIMBERS ARE CUT SQUARE
AND NOT WEAKENED BY MORTISES. :: ::

**THIS IMPROVEMENT SAVES MUCH CARPENTER'S
LABOR AND CONSEQUENT COST.**

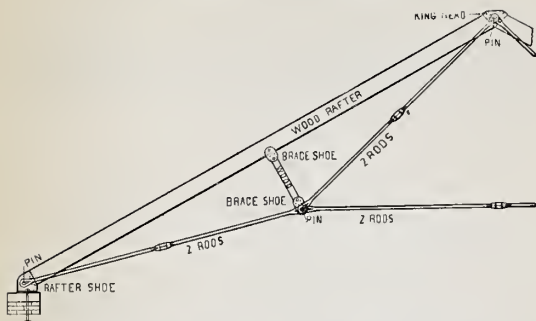
If Architects or others will send drawings of what
they want, *with dimensions marked in*, estimates will be
furnished for any size of TRUSS CASTINGS, RODS, BOLTS
AND WASHERS; and any other information regarding
these specialties will be given.

Contractors, Carpenters, Masons or others, may or-
der the required Castings, Rods, Bolts, and Washers
from us direct.

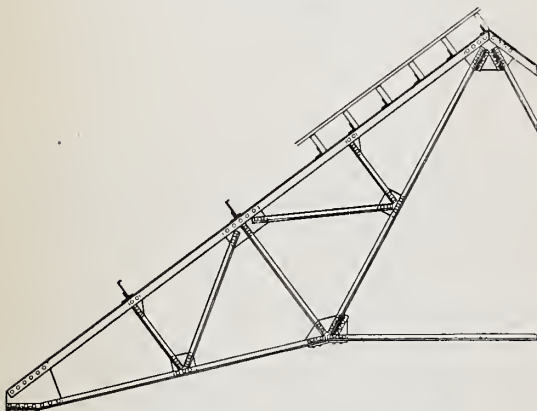
PIERRE DUVINAGE,

253 Broadway, New York

ROOF TRUSSES.



Combination wood, cast iron fittings, steel rods and pins.

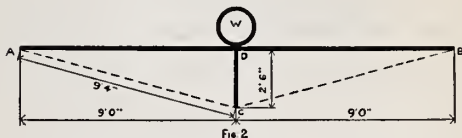
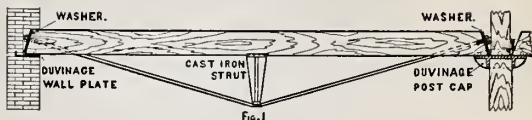


Steel trusses for power plant, halls and other buildings requiring clear floor space.

PIERRE DUVINAGE,

253 Broadway, New York

CAMBERED GIRDERS.



Wood girders of long span and heavily loaded strengthened by iron or steel as shown above.

In Fig. 2 let W represent the load concentrated at D . The stress in the member DC is equal to W . The stress in the other members may be found by applying the formulas.

$$\text{Stress } DC = + W$$

$$\text{Stress } AC \text{ or } BC = - \frac{AC}{DC} \times \frac{W}{2}$$

$$\text{Stress } AB = + \frac{AD}{DC} \times \frac{W}{2}$$

The $+$ and $-$ signs in the formulas indicate compression and tension respectively, and in Fig. 2 and 4 the solid lines represent compression and the dotted lines tension.

In designing let $W = \frac{5}{8}$ the entire load on the girder, and in above if the load is 2,000 lbs. per running foot then 18 ft. 0 ins. \times 2,000 = 36,000 lbs. entire load; $\frac{5}{8}$ of 36,000 = 22,500 lbs. the load W acting on the beam over the strut DC .

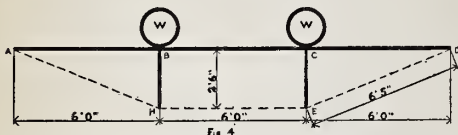
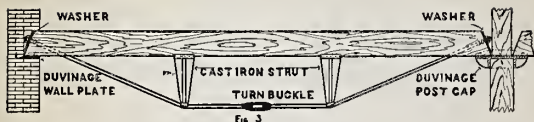
The tension in the rod AC is equal to the length $AC \div DC$ multiplied by one-half of W or substituting the given dimensions 9 ft. 4 ins. \div 2 ft. 6 ins. = 3.73 \times ($\frac{1}{2}$ of 22,500) = 41,963 lbs. the tensile stress in rod AC , and taking the ultimate tensile strength of wrought iron at 50,000 lbs. per sq. in. using a factor of safety of 4, we have 50,000 \div 4 = 12,500 lbs. per sq. in., then taking the tensile stress in rod AC 41,963 lbs. \div 12,500 = 3.35 sq. in. The area of a $2\frac{1}{8}$ in. round rod is 3.54, the nearest standard size having the required sectional area. As the area at the bottom of the thread is less than area required, it is necessary to upset the threaded portion of the rod and the standard upset for $2\frac{1}{8}$ in. is $2\frac{5}{8}$ ins.

The washers at A & B are usually made the full width of the girder and $\frac{5}{8}$ to 1 in. in thickness.

PIERRE DUVINAGE,

253 Broadway, New York

CAMBERED GIRDERS.



In Fig. 4 the calculations for the stresses in the various members are similar to those given for the trussed beam with one support, and may be expressed in formulas:

$$\text{Stress BH or CE} = + W$$

$$\text{" AH or DE} = - \frac{AH}{BH} \times W$$

$$\text{" HE} = - \frac{AB}{BH} \times W$$

$$\text{" AD} = + \frac{AB}{BH} \times W$$

In practice $W = 11/30$ of entire load, and in above, if the load is 2,000 lbs. per running foot, then 18 ft. 0 ins. \times 2,000 = 36,000 lbs. entire load; $11/30$ of 36,000 = 13,200 lbs. the load W acting on the beam over the strut BH and CE and applying the above formula, we have

$$\text{Stress AH} = \frac{6 \frac{5}{12}}{2.5} \times 13,200 = 33,924,$$

the stress in rod AH and $33,924 \div 12,500 = 2.713$ sq. in., area of rod. The area of $1\frac{7}{8}$ in. rod is 2.76 sq. in., the nearest standard size having the required area, and the threaded portion should be upset to $2\frac{3}{8}$ inches.

Cambered girders are made with one rod in center of wood beams or with 2 rods on outside of beam as may be required.

PIERRE DUVINAGE IS PREPARED TO SUPPLY THE RODS, WASHERS, DUVINAGE CAST IRON STRUTS, WALL PLATES AND POST CAPS FOR ANY SIZES REQUIRED AT REASONABLE PRICES FOR THE BEST MATERIALS AND PROMPT DELIVERIES.

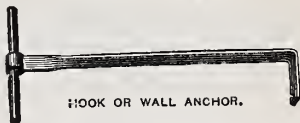
CORRESPONDENCE ON THE SUBJECT INVITED.

PIERRE DUVINAGE,

253 Broadway, New York

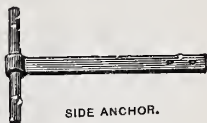
Hook Anchors, Side Anchors, Straps, Ashlars, Girder Straps and Wall Plate Anchors.

PRICE LIST.



HOO K OR WALL ANCHOR.

Size of Iron Inches	in. 12	in. 14	in. 16	in. 18	in. 20	in. 24	in. 30	in. 36	in. 48	in. 60
1 1/2 x 3/8	.32	.35	.38	.40	.42	.47	.54	.61	.85	1.00



SIDE ANCHOR.

Size of Iron Inches	in. 12	in. 14	in. 16	in. 18	in. 20	in. 24	in. 30	in. 36	in. 48	in. 60
1 1/2 x 3/8	.29	.31	.35	.37	.39	.44	.51	.58	.72	.86



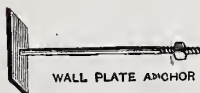
STRAP ANCHOR.

Size of Iron Inches	in. 12	in. 14	in. 16	in. 18	in. 20	in. 24	in. 30	in. 36
1 1/2 x 3/8	.17	.20	.23	.25	.27	.33	.40	.47



GIRDER ANCHOR

Size of Iron Inches	in. 20	in. 24	in. 30	in. 36
2 1/4 x 3/8	.81	.93	1.11	1.26
2 1/2 x 1/2	1.26	1.44	1.68	1.92
3 x 1/2	1.60	1.80	2.10	2.40



WALL PLATE ANCHOR

Rod	20 in.	24 in.	30 in.	36 in.	48 in.
5/8	.55	.60	.70	.75	.90
3/4	.70	.75	.90	1.05	1.25



ASHLARS.

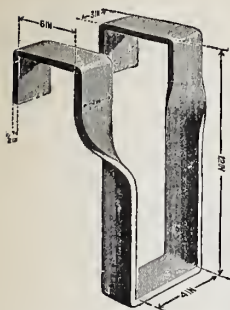
Inches	10 in.	12 in.	14 in.
3/4 x 3-16	.05	.06	.07
1 x 1/4	.08	.09	.12

(For Galvanized Ashlars—Add 50%, to above price.)

PIERRE DUVINAGE,

253 Broadway, New York

TIMBER HANGERS (Single.)



To avoid mistakes, please give sizes in the order shown on Cut.

Cut shows 6 x 12 x 4 TIMBER HANGER, made of 3 x $\frac{1}{2}$ Iron

Any size not on list made to order.

Prices subject to change without notice.

Discount

Terms Net Cash.

SIZE OF HANGER	SIZE 2x $\frac{3}{8}$	OF 2x $\frac{1}{2}$	IRON 2 $\frac{1}{2}$ x $\frac{3}{8}$	SIZE 2 $\frac{1}{2}$ x1 $\frac{1}{2}$	OF 3x $\frac{1}{2}$	IRON 3x $\frac{5}{8}$
3x 8x3.....	.60	.75	.....	.....	.....	.....
3x 9x3.....	.60	.75	.....	.....	.....	.....
3x10x3.....	.60	.80	.....	.....	.....	.....
3x12x3.....	.67	.90	.83	.....	.....	.....
4x 8x3.....	.60	.78	.74	.....	.....	.....
4x 8x4.....	.60	.78	.74	.....	.....	.....
4x 9x4.....	.62	.80	.77	1.00	.....	.....
4x10x2.....	.65	.82	.80	.....	.....	.....
4x10x4.....	.65	.82	.80	1.08	.....	.....
4x12x2.....	.72	.95	.90	.....	.....	.....
4x12x4.....	.72	.95	.90	1.20	.....	.....
4x14x2.....	.80	1.05	1.00	.....	.....	.....
4x14x4.....	.80	1.05	1.00	1.30	.....	.....
6x 8x3.....	.70	.92	.86	.....	.....	.....
6x 8x4.....	.70	.92	.86	.....	.....	.....
6x 8x6.....	.70	.92	.86	1 20	.....	.....
6x 9x3.....	.72	.95	.90	1.20	.....	.....
6x 9x6.....	.72	.95	.90	1.20	.....	.....
6x10x2.....	.75	1.00	.94	.....	.....	.....
6x10x4.....	.75	1.00	.94	1.25	1.55	1.90
6x10x6.....	.75	1.00	.94	1 25	1.55	1.90
6x12x2.....	.82	1.10	1.03	.....	.....	.....
6x12x3.....	.82	1.10	1.03	1.37	1.65	2.05
6x12x4.....	.82	1.10	1.03	1.37	1.65	2.05
6x12x6.....	.82	1.10	1.03	1.37	1.65	2.05
6x14x2.....	.89	1.20	1.12	.....	.....	.....
6x14x4.....	.89	1.20	1.12	1.50	1.80	2.25
6x14x6.....	.....	1.20	1.12	1.50	1.80	2.25
8x10x4.....	.....	1.10	1.03	1.43	1.65	2.15
8x10x6.....	.....	1.10	1.03	1.43	1.65	2.15
8x10x8.....	.....	1.10	1.03	1.43	1.65	2.15
8x12x4.....	.....	.....	.....	1.55	1.85	2.30
8x12x6.....	.....	.....	.....	1.55	1.85	2.30
8x12x8.....	.....	.....	.....	1.55	1.85	2.30
8x14x4.....	.....	.....	.....	1 65	2.00	2.45
8x14x6.....	.....	.....	.....	1.65	2.00	2.45
8x14x8.....	.....	.....	.....	1.65	2.00	2.45

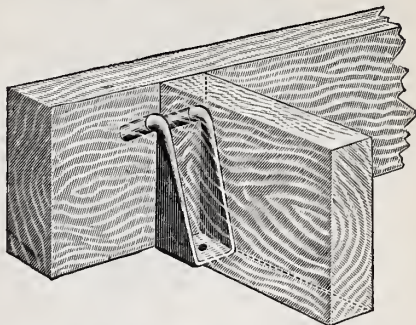
PIERRE DUVINAGE,

253 Broadway, New York

GOETZ JOIST HANGERS.

Made of best Wrought Iron.

Forged under Steam Hammer.
Bent up by Machine.



Burnished and Varnished.
Best looking Stirrup.

Large stock on hand ready for instant shipment.

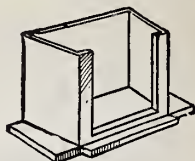
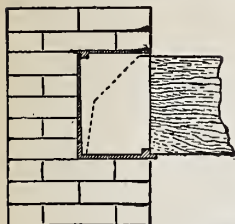
PRICE LIST

No. of Hanger.	APPLIED TO JOISTS.				Price Each.
12 — 2 x 6	2 x 8	2 x 10	2 x 12	.....	\$ 30
12½ — 2½ x 8	2½ x 10	2½ x 12	.....	.....	35
13 — 3 x 6	3 x 8	3 x 10	3 x 12	.....	40
14 — 4 x 6	4 x 8	4 x 10	4 x 12	.....	60
102 — 2 x 12	2 x 14	2 x 16	.....	.....	45
102½ — 2½ x 12	2½ x 14	2½ x 16	.....	.....	50
103 — 3 x 12	3 x 14	3 x 16	.....	.....	60
104 — 4 x 12	4 x 14	4 x 16	.....	.....	85
105 — 5 x 10	5 x 12	5 x 14	5 x 16	.....	95
106 — 6 x 10	6 x 12	6 x 14	6 x 16	.....	1 10
107 — 7 x 10	7 x 12	7 x 14	7 x 16	.....	1 30
108 — 8 x 10	8 x 12	8 x 14	8 x 16	.....	1 50
109 — 9 x 12	9 x 14	9 x 16	9 x 18	.....	1 75
110 — 10 x 12	10 x 14	10 x 16	10 x 18	.....	2 00
112 — 12 x 14	12 x 16	12 x 18	12 x 20	.....	2 80
114 — 14 x 16	14 x 18	14 x 20	.....	.....	3 30
116 — 16 x 18	16 x 20	16 x 22	.....	.....	5 00

PIERE DUVINAGE,

253 Broadway, New York

GOETZ BOX ANCHORS.



MADE OF CAST IRON.

PRICE LIST.

Size of Girder	Size of Bottom Plate	Bearing on Wall	Price Each	Cover, Extra
6 x 10	6 x 12	6	\$1.90	15
6 x 12			2.10	15
6 x 14			2.30	15
8 x 10	6 x 14	6	2.20	20
8 x 12			2.40	20
8 x 14			2.65	20
8 x 16			2.90	20
10 x 12	7 x 18	7	3.55	25
10 x 14			3.90	25
10 x 16			4.25	25
10 x 18			4.60	25
12 x 12	8 x 20	8	4.30	32
12 x 14			4.70	32
12 x 16			5.10	32
12 x 18			5.50	32
14 x 14	9 x 22	9	5.45	40
14 x 16			5.90	40
14 x 18			6.35	40
14 x 20			6.80	40
16 x 16	10 x 24	10	6.75	50
16 x 18			7.25	50
16 x 20			7.75	50
18 x 18	10 x 26	10	9.40	65
18 x 20			10.00	65

PIERRE DUVINAGE, 253 Broadway, New York

FIRE ESCAPES

Built according to latest State and City laws.



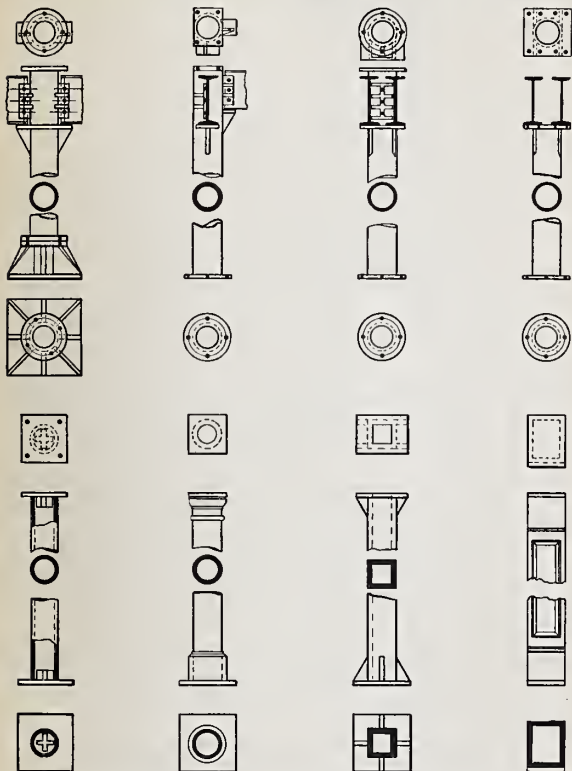
PEEKSKILL MILITARY ACADEMY,

Peekskill, N. Y.

PIERRE DUVINAGE,

253 Broadway, New York

CAST IRON COLUMNS and BASES.



Designed and cast to meet all requirements.

Tables of safe loads for round and square columns, see pages 26 and 27.

PIERRE DUVINAGE,

253 Broadway, New York

SAFE LOADS UNIFORMLY DISTRIBUTED FOR STEEL "I" BEAMS.

(In tons of 2000 lbs.)

Distance Between Sup- ports in Feet.	24" I	20" I		18" I	15" I		12" I		10" I	9" I
	80 lb.	80 lb.	65 lb.	55 lb.	60 lb.	42 lb.	40 lb.	31.5 lb.	25 lb.	21 lb.
12	77.3	65.1	51.9	39.2	36.0	26.1	19.9	15.9	10.8	8.3
13	71.3	60.1	47.9	36.2	33.3	24.1	18.3	14.7	10.0	7.7
14	66.2	55.8	44.5	33.6	30.9	22.4	17.0	13.7	9.3	7.1
15	61.8	52.1	41.5	31.4	28.8	20.9	15.9	12.7	8.6	6.7
16	58.0	48.8	38.9	29.4	27.0	19.6	14.9	11.9	8.1	
17	54.5	46.0	36.6	27.7	25.4	18.4	14.0	11.2	7.6	6.2
18	51.5	43.4	34.6	26.1	24.0	17.4	13.2	10.6	7.2	5.9
19	48.8	41.1	32.8	24.8	22.7	16.5	12.5	10.1	6.8	5.5
20	46.4	39.1	31.1	23.5	21.6	15.7	11.9	9.5	6.5	5.0
21	44.1	37.2	29.7	22.4	20.6	14.9	11.3	9.1	6.2	4.7
22	42.1	35.5	28.3	21.4	19.6	14.2	10.8	8.7	5.9	4.5
23	40.3	34.0	27.1	20.5	18.8	13.6	10.3	8.3	5.6	4.3
24	38.6	32.5	25.9	19.6	18.0	13.0	9.9	7.9	5.4	4.1
25	37.1	31.2	24.9	18.8	17.3	12.5	9.5	7.6	5.2	4.0
26	35.6	30.0	23.9	18.1	16.6	12.0	9.1	7.3	5.0	3.8
27	34.3	28.9	23.1	17.4	16.0	11.6	8.8	7.1	4.8	3.7
28	33.1	27.9	22.2	16.8	15.4	11.2	8.5	6.8	4.6	3.5
29	32.0	26.9	21.5	16.2	14.9	10.8	8.2	6.6	4.4	3.4
30	30.9	26.0	20.7	15.7	14.4	10.4	7.9	6.4	4.3	3.3
31	29.9	25.2	20.1	15.2	13.9	10.1				
32	29.0	24.4	19.4	14.7	13.5	9.8				
33	28.1	23.7	18.9	14.2	13.1	9.5				
34	27.2	23.0	18.3	13.8	12.7	9.2				
35	26.5	22.3	17.8	13.4	12.3	8.9				
36	25.7	21.7	17.3	13.1	12.0	8.7				

PIERRE DUVINAGE, 253 Broadway, New York.

SAFE LOADS UNIFORMLY DISTRIBUTED

FOR STEEL "I" BEAMS

(In Tons of 2000 lbs.)

Distance Between Supports in Feet.	8" I	7" I	6' I	5" I	4" I	3" I
	18 lb.	15 lb.	12.25 lb.	9.75 lb.	7.5 lb.	5.5 lb.
5	15.1	11.0	7.8	5.1	3.1	1.7
6	12.6	9.2	6.5	4.3	2.6	1.4
7	10.8	7.8	5.5	3.6	2.2	1.2
8	9.4	6.9	4.8	3.2	1.9	1.1
9	8.4	6.1	4.3	2.8	1.7	1.0
10	7.6	5.5	3.9	2.6	1.6	0.9
11	6.9	5.0	3.5	2.3	1.4	0.8
12	6.3	4.6	3.2	2.2	1.3	0.7
13	5.8	4.3	3.0	2.0	1.2	0.7
14	5.4	3.9	2.8	1.8	1.1	0.6
15	5.1	3.7	2.6	1.7	1.1	0.6
16	4.7	3.5	2.4	1.6	1.0	0.6
17	4.5	3.3	2.3	1.5	0.9	0.5
18	4.2	3.1	2.2	1.4	0.	0.5
19	4.0	2.9	2.0	1.4	0.8	0.5
20	3.8	2.8	1.9	1.3	0.8	0.4
21	3.6	2.6	1.9	1.2	0.8	0.4

PIERRE DUVINAGE,

253 Broadway, New York

SAFE LOADS, IN TONS OF 2000 LBS., FOR HOLLOW CYLINDRICAL CAST IRON COLUMNS.

Square ends.

Factor of safety of 8.

Outside diam., inches	Thick- ness of inches	Length of column, in feet							Wght. per ft. of Cols. lbs.
		8	10	12	14	16	18	20	
6	$\frac{3}{4}$	47	41	36	31	27	24	21	39
6	1	60	52	46	40	35	30	26	49
7	$\frac{3}{4}$	60	54	48	43	38	34	30	46
7	1	76	69	62	55	49	43	38	60
8	$\frac{3}{4}$	72	67	61	55	50	45	40	53
8	1	93	86	78	71	64	58	52	69
8	$1\frac{1}{4}$	112	104	94	86	77	69	62	83
9	$\frac{3}{4}$	85	80	74	68	62	57	52	61
9	1	110	103	95	88	80	73	67	78
9	$1\frac{1}{4}$	133	125	115	106	97	89	81	95
9	$1\frac{1}{2}$	155	145	134	123	113	103	94	110
10	1	127	120	112	105	97	89	82	88
10	$\frac{1}{4}$	154	146	136	127	118	109	100	107
10	$1\frac{1}{2}$	180	170	159	148	137	127	117	125
10	$1\frac{3}{4}$	203	192	180	168	155	143	132	142
11	1	144	137	129	122	114	106	100	98
11	$\frac{1}{4}$	175	167	158	148	139	129	122	119
11	$1\frac{1}{2}$	204	195	184	173	161	151	143	140
11	$1\frac{3}{4}$	232	221	209	197	184	172	162	159
11	2	258	246	233	219	205	191	181	176
12	1	160	154	147	139	131	123	115	108
12	$\frac{1}{4}$	196	188	180	170	160	150	141	131
12	$1\frac{1}{2}$	229	220	210	199	187	176	165	154
12	$1\frac{3}{4}$	261	251	239	226	213	201	188	176
12	2	291	279	266	252	238	224	210	196
13	1	177	170	163	156	148	140	132	118
13	$\frac{1}{4}$	216	209	200	191	181	172	162	144
13	$1\frac{1}{2}$	254	245	235	224	213	201	190	169
13	$1\frac{3}{4}$	289	280	268	256	243	229	217	193
13	2	324	312	300	286	272	257	242	216
14	1	193	187	180	173	165	157	149	128
14	$\frac{1}{4}$	237	229	221	212	203	193	183	156
14	$1\frac{1}{2}$	278	270	260	250	239	227	215	184
14	$1\frac{3}{4}$	318	308	297	285	273	260	246	210
14	2	356	345	333	320	305	291	276	235
15	1	209	204	197	190	183	175	167	137
15	$\frac{1}{4}$	257	250	242	233	224	214	205	168
15	$1\frac{1}{2}$	303	295	285	275	264	253	241	199
15	$1\frac{3}{4}$	347	337	327	315	302	289	276	227
15	2	389	378	366	353	339	324	309	255
16	$\frac{1}{4}$	277	270	262	254	245	235	225	180
16	$1\frac{1}{2}$	327	319	311	300	290	278	267	214
16	$1\frac{3}{4}$	375	366	356	344	332	319	306	245
16	2	421	411	400	387	373	368	343	275
16	$2\frac{1}{4}$	465	454	441	427	412	396	379	304

PIERRE DUVINAGE,

253 Broadway, New York

SAFE LOADS, IN TONS OF 2000 LBS., FOR HOLLOW SQUARE CAST IRON COLUMNS.

Square Ends.

Factor of Safety of 8.

Side of Column inches	Thick- ness of metal inches	Length of column, in feet							Wght. per ft. of Cols. lbs.
		8	10	12	14	16	18	20	
6	$\frac{3}{4}$	64	57	51	45	40	36	32	49
6	1	81	73	65	58	51	45	40	63
7	$\frac{3}{4}$	80	73	67	61	55	50	45	59
7	1	102	94	86	78	70	63	57	75
8	$\frac{3}{4}$	96	90	83	77	71	65	59	68
8	1	123	116	107	99	91	83	76	88
8	$1\frac{1}{4}$	149	139	129	119	110	100	92	106
9	$\frac{3}{4}$	112	106	100	93	87	80	74	77
9	1	144	137	129	121	112	104	96	100
9	$1\frac{1}{4}$	175	166	156	146	136	126	116	121
9	$1\frac{1}{2}$	203	193	182	170	158	146	135	141
10	1	166	159	151	142	134	125	117	113
10	$1\frac{1}{4}$	201	193	183	173	163	152	142	137
10	$1\frac{1}{2}$	235	225	214	202	189	177	166	159
10	$1\frac{3}{4}$	266	254	242	228	215	201	188	181
11	1	187	180	172	164	156	147	138	125
11	$1\frac{1}{4}$	227	219	210	200	190	179	169	152
11	$1\frac{1}{2}$	266	256	246	234	222	209	197	178
11	$1\frac{3}{4}$	302	291	279	266	252	238	224	202
11	2	336	324	310	295	280	264	249	225
12	1	208	201	194	186	177	169	160	138
12	$1\frac{1}{4}$	254	246	237	227	217	206	196	168
12	$1\frac{1}{2}$	297	288	278	266	254	242	229	197
12	$1\frac{3}{4}$	338	328	316	303	289	275	261	224
12	2	377	366	352	338	323	307	291	250
13	1	228	222	215	208	199	191	182	150
13	$1\frac{1}{4}$	279	272	263	254	244	233	223	184
13	$1\frac{1}{2}$	328	319	309	298	286	274	261	216
13	$1\frac{3}{4}$	375	365	353	341	327	313	298	246
13	2	419	407	394	380	365	350	334	275
14	1	249	243	236	229	221	213	204	163
14	$1\frac{1}{4}$	305	298	290	281	271	261	250	199
14	$1\frac{1}{2}$	359	351	341	330	319	307	294	234
14	$1\frac{3}{4}$	411	401	390	378	365	351	336	268
14	2	460	449	437	423	408	393	376	300
15	1	270	264	258	250	243	235	226	175
15	$1\frac{1}{4}$	331	324	316	308	298	288	277	215
15	$1\frac{1}{2}$	390	382	373	362	351	339	327	253
15	$1\frac{3}{4}$	446	437	427	415	402	388	374	289
15	2	501	490	479	465	451	436	420	325
16	$1\frac{1}{4}$	357	350	343	334	325	315	305	231
16	$1\frac{1}{2}$	421	413	404	394	383	372	359	272
16	$1\frac{3}{4}$	482	474	463	452	440	426	412	312
16	2	541	532	520	507	493	478	463	350
16	$2\frac{1}{4}$	598	588	575	561	545	529	511	387

PIERRE DUVINAGE, 253 Broadway, New York

STRENGTH OF WOODEN BEAMS.

The following table gives the safe uniformly distributed loads, in lbs., on rectangular wooden beams one inch thick, for a maximum allowable fibre strain of 1000 lbs. per sq. in.

For the different kinds of wood, ordinarily used in construction, the values given in the table are to be multiplied by the following factors:—

Spruce or White Pine, 0.75	For	1.00	For
White Oak, 1.00	ordinary	1.25	purely
Southern Yellow Pine, 1.25	purposes.	1.50	static loads.

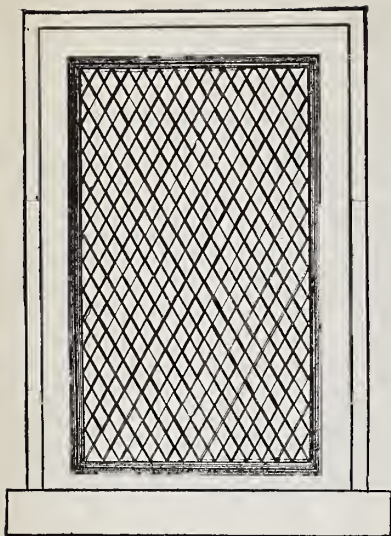
Span in Feet.	Depth in Inches.										
	6	7	8	9	10	11	12	13	14	15	16
5	800	1090	1420	1800							
6	670	910	1190	1500	1850	2240					
7	570	780	1020	1290	1590	1920	2290				
8	500	680	890	1130	1390	1680	2000	2490	2740	3130	
9	440	610	790	1000	1230	1490	1780	2210	2430	2780	3160
10	400	540	710	900	1110	1340	1600	1990	2190	2500	2840
11	360	495	650	820	1010	1220	1450	1810	1990	2270	2590
12	330	450	590	750	930	1120	1330	1660	1820	2080	2370
13	310	420	550	690	860	1030	1230	1530	1690	1930	2200
14	290	390	510	640	800	960	1150	1430	1570	1790	2040
15	270	360	480	600	740	900	1070	1330	1460	1670	1900
16	250	340	450	560	700	840	1000	1250	1370	1570	1780
17	240	320	420	530	650	790	940	1170	1290	1470	1680
18	220	300	400	500	620	750	890	1110	1220	1390	1590
19	210	290	380	480	590	710	840	1050	1150	1320	1500
20	200	272	360	450	560	670	800	990	1090	1250	1420
21	190	260	340	430	530	640	760	950	1040	1190	1360
22	180	248	325	410	510	610	730	910	1000	1140	1300
23	175	237	310	390	480	590	700	870	950	1090	1240
24	167	228	297	380	460	560	670	830	910	1040	1190
25	160	218	285	360	450	540	640	800	880	1000	1140
26	154	210	275	350	430	520	620	770	840	960	1100
27	149	202	265	330	410	500	590	740	810	930	1060
28	143	195	255	315	400	480	570	710	780	890	1020
29	138	188	246	307	380	465	550	690	750	860	980
30	134	182	237	297	370	450	530	660	730	830	950

Loads given below the zig-zag line produce deflections liable to crack plastered ceilings. To obtain the safe load for any thickness, multiply the values given for one inch by the thickness of the beam.

To obtain the required thickness for any load, divide by safe load given for one inch.

PIERRE DUVINAGE,

253 Broadway, New York



WIRE WINDOW OR DOOR GUARDS

Diamond Mesh		Channel or Rod Frames	
1"	No. 12 wire.....	cost per sq. ft.....	\$.52
1"	No. 10 " .....	" .....	.64
1 1/4"	No. 12 " .....	" .....	.48
1 1/4"	No. 10 " .....	" .....	.56
1 1/2"	No. 12 " .....	" .....	.40
1 1/2"	No. 10 " .....	" .....	.44
1 1/2"	No. 8 " .....	" .....	.56
1 1/2"	3/16" " .....	" .....	.64
2"	No. 10 " .....	" .....	.40
2"	No. 8 " .....	" .....	.52
2"	3/16" " .....	" .....	.56

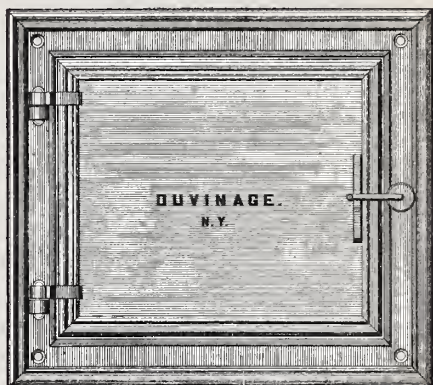
If Hinges and Locks are required, add \$1.00 per guard.

DISCOUNT.....

PIERRE DUVINAGE,

253 Broadway, New York

Clean Out Doors

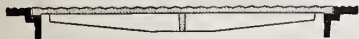


SIZE OF DOOR OPENING.

No.	Opening					Price
10	8 in.	wide	6 in.	high		\$1.50
12	12	"	"	10	"	2.50
14	16	"	"	12	"	3.50
15	20	"	"	14	"	4.50
18	16	"	"	24	"	8.00
19	24	"	"	30	"	15.00
20	24	"	"	36	"	18.00

PIERRE DUVINAGE,
253 Broadway, New York

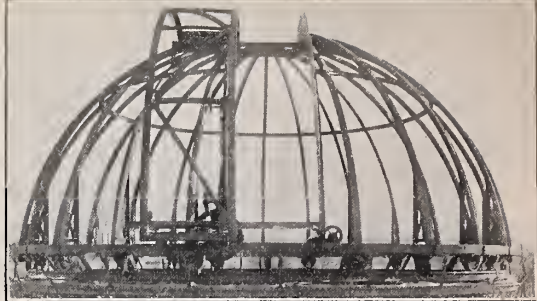
Trap Pit Covers.



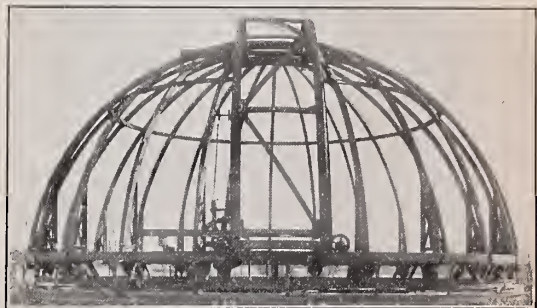
Size of Opening	Price
12" x 12"	\$3.00
16" x 16"	7.00
20" x 20"	11.00
24" x 24"	15.00
36" x 36"	26.00

OTHER SIZES ON APPLICATION.

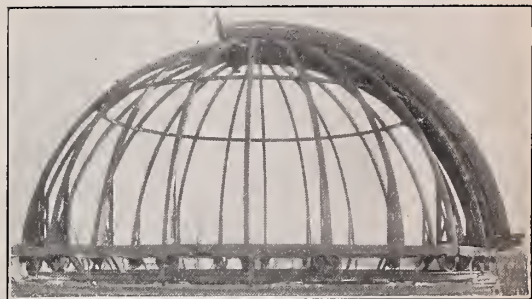
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Shutter Open



Shutter Closed



Dome Turned Quarter Round

Revolving Dome 24' 0" diameter, weight about 10 tons,
operated by hand power, for the Astronomical Observatory,
Cornell University, Ithaca, N. Y.

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My 26 years experience in this line is at your service and I know I can supply your wants and save you time and money, as I give strict attention and personal supervision to all details.

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